REVIEW ARTICLE

STUDY OF OUTCOME OF TOT MESH REPAIR IN GENUINE STRESS INCONTINENCE

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ABSTRACT: AIMS AND OBJECTIVES: To analyse the outcome of TOT mesh repair in genuine stress urinary incontinence. **MATERIALS & METHODS:** 25 patients with symptoms of genuine stress urinary incontinence who attended the outpatient department between October 2010 – December 2012 were studied. All patients were evaluated by detailed history, physical examination, stamey grading, pad test, uroflow, VLPP, cystoscopy and bonney's test. 25 patients were subjected to TOT mesh repair under spinal anaesthesia with mean follow up of 12 months. **RESULTS:** Total 25 patients were evaluated. Majority fall in 41-45 years age group. 60% have grade I and 40% have grade 2 SUI. 60% patients weight of pre op pad is 3.5gms. 15 out of 25 patients have 80-120 cm H₂O of VLPP. 92% of patients were cured. 8% patients show improvement of symptoms. No failures were noted. 23 out of 25 patients were pad free post operatively. **CONCLUSION:** TOT mesh repair is an effective and safe technique for the treatment of genuine stress incontinence.

KEYWORDS: Incontinence, voiding.

INTRODUCTION: Stress urinary incontinence as defined by international continence society is the involuntary leakage of urine on effort, on exertion, on sneezing or coughing. It has substantial impact on quality of life for many women. Treatment includes initial conservative therapies and then surgery is an option for women whose quality of life is still impaired. Advances in surgical techniques have led to availability of a number of different procedures to treat SUI. An evolution in sling procedures has occurred from bladder neck slings to slings located at the midurethral level. Midurethral slings are the cornerstone of anticontinence surgery. This is mostly because these midurethral procedures have proved durable, reproducible and highly effective. Specially shaped trocars are used to access the retropubic space for sling placement, whereas differentially shaped trocars are used to access the obturator foramen for sling placement. The minimally invasive procedure eliminates retropubic needle passage and involves inserting a mesh tape under the urethra through three small incisions in the groin area.⁽¹⁾ TOMUS were developed to avoid the potential for vascular and intestinal injury associated with blind retropubic passage of trocars. The procedure do not require cystoscopy. This study focused on the attributes of TOMUS that make them efficacious. Based on the review of pertinent literature, the TOMUS sling technique and corresponding post-operative outcomes are discussed.

MATERIALS & METHODS: This was a prospective study to analyse the outcome of TOT mesh repair in GSI. Our study included 25 patients with symptoms of GSI who attended the outpatient department between October 2010 – December 2012.

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PATIENTS INCLUDED IN THE STUDY ARE INCLUSION CRITERIA:

1. History of urine loss only with physical exertion (History and stress test).
2. Normal voiding habits (Fewer than eight episodes per day and fewer than two episodes per night).
3. Pliable and compliant vaginal wall and adequate vaginal capacity (pelvic examination).
4. Normal post-void residual volume.

EXCLUSION CRITERIA: The following: patients were excluded from the study.

1. Prolapse.
2. Urgency & urge incontinence.
3. Fistulae.
4. UTI.
5. Renal insufficiency.
6. Neurological history and findings.
7. History of anticontinence or radical pelvic surgery.
8. Pregnancy.

Initially all patients were evaluated by a proforma that includes detailed history, physical examination, stamey grading, pad test, uroflow, VLPP, cystoscopy and Bonneys test. All are subjected to TOT mesh repair under spinal Anaesthesia with mean follow-up of 12 months. Our technique of TOT repair is outside in technique. Post operatively Foleys catheter removed after 48 hours.

Antibiotics given for 3 days Analgesics for 2 days. Patient discharged on 3rd post-operative day. Post- operative follow up evaluation done by questionnaire, pad test and cough stress test.

RESULTS: Total patients studied were 25. Of these 10 (40%) patients fall in 41-45 years with mean age of 42.5 years 15(60%) have grade2 and 10(40%) have grade 3 SUI. 15(60%) have preop pad weight of 3.5 gms. 40% patients have VLPP of 60-80 cm H₂O and 60% have 80-120 cm H₂O. With TOT mesh repair 23(92%) out of 25 patients were cured of SUI and 2(8%) patients experienced improvement in symptoms. No failures were noted. 23(92%) were found to be pad free postoperatively. Rest of 2 patients post op pad weight was less than 1 gm (<1pad /day. 3(12%) out of 25 patients presented with complications like. 1 case presented with urinary retention managed by perurethral foley's catheterisation normalized on 5th day. 1 case presented with groin pain treated with analgesics. Vaginal extrusion of mesh occurred in one case at 26th day follow up. Wound irrigation with antibiotic solution, trimming of vaginal flap edges and resuturing with 2/0 chromic catgut was done. Under antibiotic cover, wound healed well.

DISCUSSION: SUI is a condition that affects the psychosocial welfare, interpersonal relationships, quality of life of affected women. Since ulmstens article in 1996, there has been extensive acceptance of midurethral sling technologies. The ICI proceedings concluded that needle suspension of any kind do not maintain satisfactory success rates with time and currently have few, if any, indications.⁽²⁾ Originally described almost 100 years ago, slings of various types have had a resurgence in popularity over the past several years.⁽³⁾ TOT was associated with high success rate, no bladder injury and few perioperative complications in women with SUI.⁽⁴⁾ Zullo et al. reported that both techniques in-out & out-in TOT techniques are equally effective in surgical treatment of SUI.⁽⁵⁾ Incidence of mesh erosions

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ranges from 3.8% to 15%.⁽⁶⁾ Obstructive voiding dysfunction is the most common complication of retropubic midurethral slings 17-50%⁽⁷⁾ TOT was available method for correction of SUI. Because of simplicity for both surgeon and patient, excellent surgical outcome, low morbidity, the transobturator sling appears to have reproducible short term continence results similar to those seen with TVT procedure yet seemingly less voiding dysfunction. It mimics the suprapubic approach by stabilizing the midurethra, recapitulating the hammock support that is thought to be responsible for continence. The results of our study were compared with the various studies given in tables below.

CONCLUSIONS: The midurethral slings are grouped into two broad categories of retropubic midurethral sling and transobturator mid urethral slings. For both techniques midurethral access is obtained with minimal vaginal dissection. Transobturator approach is an effective and safe technique for the treatment of female SUI. It does not require high equipment. The procedure does not even require cystoscopy. The outcome was found to be excellent. However randomized trials are needed to demonstrate the potential superiority of this technique compared to original TVT in terms of intra operative complications or post-operative voiding dysfunction.

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ABBREVIATIONS:

SUI: STRESS URINARY INCONTINENCE
 VLPP: VALSALVA LEAK POINT PRESSURE
 TOT: TRANSOBTURATOR TAPE
 TVT: TRANSVAGINAL TAPE
 TOMUS: TOT MIDURETHRAL SLING
 GSI: GENUINE STRESS INCONTINENCE

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Scissors are introduced between the urethra and the mesh and the mesh's tension is adjusted

TOT mesh - a 10mm width by 30 cm length polypropylene monofilament macropore mesh (Prolene).

Freedom- VM™
Trans Obturator Sling System

Female Stress Urinary Incontinence Prosthesis

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Age

Study	Mean age in years
Delorme et al, 2003	64 (50-81)
deTyrac et al, 2004	54.7
Lim et al 2006	55
Kocjancic et al 2008	59 (35-78)
Present study	42.5 (30-55)

Assessment

Study	Parameters
Delorme et al, 2003	Cough stress test, uroflow
deTyrac et al, 2004	Cough stress test/ questionnaire
Lim et al 2006	Questionnaire, cough stress test
Kocjancic et al 2008	Questionnaire
Present study	Questionnaire, cough stress test, pad test

Pad test (post op)

No pads (weight in grams)	No of patients	%
0/dry	23	92
<1(<1 gm)	2	8

most patients were pad free. Few were used < 1 pad / day

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Cureability

Study	% of cured	% of improved
DeLoraine et al, 2003	90.6	9.4
deTyrac et al, 2004	90	1.3
Lam et al 2006	93	4
Krcjancic et al 2008	90	9
Present study	92	8

Adverse events

Study	N	Adverse events
deTyrac et al, 2004	20	6% uncomplicated UTL, 1% uterine leiomyoma
Giberti et al 2007	118	4% vaginal erosion, 1% vaginal leiomyoma
Wal negany 2008	102	1% vaginal laceration
Richberger et al 2009	197	2.5% vaginal erosion, 5.5% UTL, 5% urinary retention
Present study	25	1(4%) pain in groin pain, 1(4%) urinary retention, 1(4%) vaginal erosion.

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